Section-by-Section Analysis.

H.R. XXXX, the National Aeronautics and Space Administration Authorization Act of 2010

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Sec. 1. Short Title.

The "National Aeronautics and Space Administration Authorization Act of 2010".

Sec. 2. Findings.

Congress finds that the agency is and should remain a multimission agency, and 16 other findings.

Sec. 3. Definitions

The terms "Administrator", "ISS", "NASA", "NOAA", and "OSTP" are defined.

TITLE I. AUTHORIZATION OF APPROPRIATIONS

Sec. 101. Fiscal Year 2011

Authorizes NASA at $19,000,000,000 for FY 2011. That amount is the same as that in the President's FY 2011 request.

The authorization includes the following breakdown:

Science: $5,015,700,000, of which
$1,801,800,000 is for Earth Science
$1,485,700,000 is for Planetary Science
$1,076,300,000 is for Astrophysics
$646,900,000 is for Heliophysics
$5,000,000 is for Suborbital Augmentation
Aeronautics: $579,600,000
Space Technology: $572,200,000
Exploration: $4,535,300,000 of which
$215,000,000 is for Human Research
$14,000,000 is for the commercial cargo COTS demonstration program
$50,000,000 is for commercial crew transportation-related activities
$4,156,300,000 is for the restructured exploration program
$100,000,000 is for the loan and loan guarantee program
Space Operations: $4,594,300,000, of which
$989,100,000 is for the Space Shuttle program

$2,804,800,000 is for the International Space Station
$60,000,000 is for the Post-Shuttle Workforce Transition Initiative
$740,400,000 is for Space and Flight Support
Education, $145,800,000
Cross-Agency Support Programs: $3,111,400,000
Construction and Environmental Compliance and Restoration: $407,300,000
Inspector General: $38,400,000

Sec. 102. Fiscal Year 2012

Authorizes NASA at $19,450,000,000 for FY 2012. That is the same amount as is projected for FY 2012 in the President's FY 2011 budget request. The authorization includes the following breakdown:

Science: $5,278,600,000 of which
$1,944,500,000 is for Earth Science
$1,547,200,000 is for Planetary Science
$1,109,300,000 is for Astrophysics,
$672,600,000 is for Heliophysics
$5,000,000 is for Suborbital Augmentation
Aeronautics: $598,700,000
Space Technology: $1,012,200,000
Exploration: $4,881,800,000 of which
$215,000,000 is for Human Research
$50,000,000 is for commercial crew transportation-related activities
$4,516,800,000 is for the restructured exploration program
$100,000,000 is for the loan and loan guarantee program
Space Operations: $3,930,300,000, of which
$86,100,000 is for the Space Shuttle program
$3,033,600,000 is for the International Space Station
$40,000,000 is for the Post-Shuttle Workforce Transition Initiative
$770,600,000 is for Space and Flight Support
Education: $145,800,000
Cross-Agency Support Programs: $3,189,600,000
Construction and Environmental Compliance and Restoration: $373,800,000
Inspector General: $39,200,000

Sec. 103. Fiscal Year 2013

Authorizes NASA at $19,960,000,000 for FY 2013. That is the same amount as is projected for FY 2013 in the President's FY 2011 budget request. The authorization includes the following breakdown:

Science: $5,569,500,000, of which
$2,089,500,000 is for Earth Science
$1,591,200,000 is for Planetary Science

$1,149,100,000 is for Astrophysics
$734,700,000 is for Heliophysics
$5,000,000 is for Suborbital Augmentation

Aeronautics: $609,400,000

Space Technology: $1,059,700,000

Exploration: $4,888,500,000 of which
$215,000,000 is for Human Research
$5,000,000 is for the Exploration Technology and Demonstration program
$5,000,000 is for the Exploration Precursor Robotic Missions program
$50,000,000 is for commercial crew transportation-related activities
$4,513,500,000 is for the restructured exploration program
$100,000,000 is for the loan and loan guarantee program

Space Operations: $3,993,300,000, of which
$3,179,400,000 is for the International Space Station
$40,000,000 is for the Post-Shuttle Workforce Transition Initiative
$773,900,000 is for Space and Flight Support

Education: $145,800,000

Cross-Agency Support Programs: $3,276,800,000

Construction and Environmental Compliance and Restoration: $376,900,000

Inspector General: $40,100,000

Sec. 104. Fiscal Year 2014

Authorizes NASA at $20,600,000,000 for FY 2014. That is the same amount as is projected for FY 2014 in the President's FY 2011 budget request. The authorization includes the following breakdown:

Science: $5,794,800,000, of which
$2,216,600,000 is for Earth Science
$1,635,100,000 is for Planetary Science
$1,158,700,000 is for Astrophysics
$779,400,000 is for Heliophysics
$5,000,000 is for Suborbital Augmentation

Aeronautics: $615,100,000

Space Technology: $1,063,900,000

Exploration: $5,106,800,000 of which
$215,000,000 is for Human Research
$10,000,000 is for the Exploration Technology and Demonstration program
$10,000,000 is for the Exploration Precursor Robotic Missions program
$50,000,000 is for commercial crew transportation-related activities
$4,721,800,000 is for the restructured exploration program
$100,000,000 is for the loan and loan guarantee program

Space Operations: $4,062,600,000, of which

$3,271,900,000 is for the International Space Station
$790,700,000 is for Space and Flight Support
Education: $145,800,000
Cross-Agency Support Programs: $3,366,500,000
Construction and Environmental Compliance and Restoration: $403,500,000
Inspector General: $41,000,000

Sec. 105. Fiscal Year 2015

Authorizes NASA at $20,990,000,000 for FY 2015. That is the same amount as is projected for FY 2015 in the President's FY 2011 budget request. The authorization includes the following breakdown:

Science: $5,899,000,000, of which
$2,282,200,000 is for Earth Science
$1,654,400,000 is for Planetary Science
$1,131,600,000 is for Astrophysics
$825,800,000 is for Heliophysics
$5,000,000 is for Suborbital Augmentation
Aeronautics: $625,300,000
Space Technology: $1,217,900,000
Exploration: $5,157,900,000 of which
$215,000,000 is for Human Research
$30,000,000 is for the Exploration Technology and Demonstration program
$30,000,000 is for the Exploration Precursor Robotic Missions program
$50,000,000 is for commercial crew trasnportation-related activities
$4,732,900,000 is for the restructured exploration program
$100,000,000 is for the loan and loan guarantee program
Space Operations: $4,030,500,000, of which
$3,232,800,000 is for the International Space Station
$797,700,000 is for Space and Flight Support
Education: $146,800,000
Cross-Agency Support Programs: $3,462,200,000
Construction and Environmental Compliance and Restoration: $408,500,000
Inspector General: $41,900,000

TITLE II. HUMAN SPACE FLIGHT `

Subtitle A-Exploration

Sec. 201. Reaffirmation of Exploration Policy

Reaffirms the support of the Congress for the exploration policy articulated in Secs. 401 and 402 of Public Law 110-422.

Sec. 202. Restructured Exploration Program

Directs the Administrator to develop a plan to restructure the current exploration program and develop, test, and demonstrate a government-owned crew transportation system and evolvable heavy lift transportation system in a manner that enables a challenging exploration program, minimizes the human space flight "gap", seeks efficiencies in program management and reductions in fixed and operating costs, requires a high level of crew safety, contains a robust flight and ground test program, facilitates the transition of Shuttle personnel, makes maximum practicable use of the work completed to date on the Orion, Ares I, heavy lift, and ground support and exploration enabling projects and contracts, and is phased in a manner consistent with available and anticipated resources.

Sec. 203. Space Radiation

Directs the Administrator to develop a space radiation mitigation and management strategy and implementation plan, and to transmit the strategy and plan no later than 12 months after the date of enactment of the Act.

Subtitle B. International Space Station

Sec. 211. Extension of ISS Operations

Directs the Administrator to take all necessary measures to support the operation and full utilization of the International Space Station (ISS) through at least the year 2020 and to seek to reduce ISS operating costs.

Sec. 212. ISS Research Management Institution

Directs the Administrator to designate an independent, not-for-profit U.S. institution for the management of research carried out on the ISS.

Sec. 213. ISS Research Management Plan.

Directs the Administrator to have the designated institution prepare a management plan and transmit the plan no later than 2 years after the date of enactment of the Act.

Sec. 214. Outreach Plan for U.S. ISS Research

Directs the Administrator to have the institution prepare a plan for broadening and enhancing the outreach to potential U.S. government, academic, and commercial users of the ISS no later than 2 years after the date of enactment of the Act.

Sec. 215. ISS Cargo Resupply Requirements and Contingency Capacity Through 2020

Directs the Administrator to conduct an assessment of the ISS Cargo Resupply capacity required to support extended operations of the ISS through 2020 and explore options with its partners for ensuring upmass and downmass needs are addressed in the event that adequate U.S. commercial cargo resupply capabilities are not available during any extended period after the Shuttle is retired.

Sec. 216. Centrifuge

Directs the Administrator to assess innovative options for deploying a variable-gravity centrifuge and to transmit the assessment no later than one year after the date of enactment of the Act.

Sec. 217. Exploration Technology Development Using the ISS

Directs the Administrator to develop a plan for carrying out prioritized activities that support NASA's long-term plans for exploration beyond low-Earth orbit that require the capabilities of the International Space Station and to transmit the plan no later than 270 days after the date of enactment of this Act.

Sec. 218. Fundamental Space Life Science and Physical Sciences and Related Technology Research

Requires the Administrator to designate a responsible official and to develop a strategic plan for carrying out research in space life and physical sciences and technology consistent with the priorities and recommendations established by the National Academies in its decadal survey of life and microgravity sciences and to transmit the plan within one year of the enactment of the Act.

Subtitle C. Space Shuttle

Sec. 221. Expanded Scope of Space Shuttle Transition Liaison Office

Renames Space Shuttle Transition Liaison Office to Post-Shuttle Transition Liaison Office and extends life to 2 years after the last grant is awarded.

Sec. 222. Post-Shuttle Workforce Transition Initiative Grant Program

Authorizes the Administrator to make grants for the establishment, operation, coordination, and implementation of aerospace workforce and community transition strategies.

Sec. 223. Disposition of Orbiter Vehicles

Provides for the disposition of the remaining Space Shuttle orbiter vehicles upon the termination of the Space Shuttle program and provides for priority consideration being given to eligible applicants to display the orbiters at locations with the best potential value to the public, including where the location can advance STEM disciplines, and with an historical relationship with either the launch, flight operations, or processing of the Space Shuttle orbiters.

Subtitle D. Space and Flight Support

Sec. 231. 21st Century Space Launch Complex Initiative

Directs that the Administrator, in carrying out the 21st Century Space Launch Initiative, give priority to activities supporting the restructured exploration program.

Subtitle E. Commercial Crew Transportation

Sec. 241. Affirmation of Policy

Reaffirms the policy of making use of United States commercially provided International Space Station crew transport and crew rescue services; limiting the use of the government system to non-ISS missions once commercial crew transport and crew rescue services meeting safety requirements become operational; and facilitating the transfer of NASA-developed technologies to United States commercial orbital human space transportation companies.

Sec. 242. Commercial Crew and Related Commercial Space Initiatives

Directs NASA to seek opportunities to make use of commercially available crew transportation services provided that service providers meet applicable NASA safety requirements, have completed crewed flight demonstrations, and per-seat cost is not greater than the crew transportation system of the restructured exploration program.

Directs the Administrator to establish requirements for the human-rating of space transportation systems that are equivalent to NASA safety processes and procedures and requires the Administrator to make available NASA-developed technologies and NASA facilities and equipment to assist in the testing and demonstration of commercial crew transportation systems.

Requires that any company seeking to provide commercial crew transport services to NASA enter into an arrangement with NASA that allows NASA to obtain ongoing insight into the design methodologies, processes, technologies, and other information employed in the development and production of a commercial crew transportation system.

Requires the Administrator, before entering into any contracts for the use of commercially available commercial crew transport or crew rescue services, to certify that each commercial provider has demonstrated the safety and reliability of its systems.

Prohibits the Administrator from proceeding with a procurement award for a commercial crew transport and rescue services until sufficient flight experience has been demonstrated and accrued; directs the Administrator to develop and communicate NASA's human-rating requirements to commercial space companies; and directs the Aerospace Safety Advisory Panel to conduct a review.

Prohibits the Administrator from entering into any agreement for a U.S. commercial ISS crew transport or rescue service until all indemnification and liability issues associated with the use of such systems by the U.S. government have been addressed and the Administrator has provided a report describing the indemnification and liability provisions.

Directs the Administrator not to proceed with a procurement award for a commercial ISS crew transport system service if the provider's crew transportation system has a predicted level of safety that is less than that predicted for the restructured exploration program's crew transportation system.

Sec. 243. Federal Assistance for the Development of Commercial Orbital Human Space Transportation Services

Directs the Administrator to establish a program to provide financial assistance in the form of loans or loan guarantees to commercial entities for the costs of development of orbital human space transportation systems.

TITLE III. SCIENCE

Subtitle A. Earth Science

Sec. 301 Earth Science Applications

Directs the Administrator to develop a process for entering into arrangements with other government agencies that seek to benefit from ongoing NASA capabilities related to Earth science applications and decision support systems.

Sec. 302. Essential Space-Based Earth Science and Climate Measurements

Directs the Administrator to enter into an arrangement with the National Academies for a study, to be completed within 18 months after the enactment of this Act, to develop a prioritized list of essential earth science and climate measurements that can be collected with space-based means.

Sec. 303. Commercial Remote Sensing Data Purchases Pilot Project

Directs the Administrator to initiate a pilot project for purchasing commercial remote sensing data to address state, local, regional, and tribal needs.

Subtitle B. Space Science

Sec. 311. Suborbital Programs

Directs the Administrator to designate an individual responsible for leading near-term and long-term strategic planning for the suborbital and airborne program; and provide, within one year after the date of enactment of this Act, a strategic plan to support the full and productive use of NASA's suborbital and airborne assets.

Sec. 312. Explorer Program

Directs the Administrator to enter into an arrangement with the National Academies to conduct a review of the Explorer Program not later than 120 days after the date of enactment of the Act and to submit a plan for responding to the recommendations of the review no later than 16 months after the date of enactment of the Act.

Sec. 313. Radioisotope Thermoelectric Generator Material Requirements and Supply

Directs the Administrator to conduct an analysis of NASA requirements for radioisotope power system material needed to carry out planned, high priority robotic missions in the solar system and other surface exploration activities beyond low-Earth orbit; and to transmit the results of the analysis no later than 180 days after the date of enactment of the Act.

TITLE IV. AERONAUTICS

Sec. 401. Environmentally Friendly Aircraft Research and Development Initiative

Amends Sec. 302 of P.L. 110-422 by directing the Administrator to develop a plan and associated timetable for this initiative, including projected flight test demonstrations, and to transmit the plan within 270 days after the date of enactment of this Act.

Sec. 402. Research on NextGen Airspace Management Concepts and Tools

Directs the Administrator to review at least annually the alignment and timing of NASA's research and development activities in support of the NextGen airspace management modernization initiative.

Sec. 403. Research on Aircraft Cabin Air Quality

Directs the Administrator to initiate research on aircraft cabin air quality, including research on innovative aircraft cabin air quality sensors, that complements research conducted by FAA.

Sec. 404 Research on On-board Volcanic Ash Sensor Systems

Directs the Administrator to conduct a study to assess the feasibility of establishing a project focused on the development of a low-cost, on-board volcanic ash sensor system.

Sec. 405. Aeronautics Test Facilities

Directs the Administrator to develop an agency-wide plan to stabilize and where possible reverse the deterioration of the agency's aeronautics ground test facilities.

Sec. 406. Expanded Research Program on Composite Materials Used in Aerospace

Directs the Administrator to expand NASA's research program on composite materials used in aerospace applications to address such topics as progressive damage analysis and ways to mitigate how the environment interacts with composite materials over time.

TITLE V. SPACE TECHNOLOGY

Sec. 501. Space Technology Program

Directs the Administrator to establish a space technology program to enable research and development on advanced space technologies and systems that are independent of specific space mission flight projects, including such areas as in-space propulsion, power generation and storage, liquid rocket propulsion, avionics, structures, and materials; enter into an arrangement with the National Academies for a "decadal survey" study to make recommendations on research and development priorities for NASA's space technology program over the next decade; and transmit the results of the study no later than 20 months after the date of enactment of the Act.

TITLE VI. EDUCATION AND OUTREACH

Sec. 601. STEM Education and Training

Directs the Administrator to develop, conduct, support, promote, and coordinate formal and informal educational and training activities that leverage NASA's unique content expertise and facilities; and designate a Director to oversee and coordinate all NASA programs and activities in support of STEM education and training.

SEC. 602. Assessment of Impediments to Space Science and Engineering Workforce Development for Minority and Underrepresented Groups at NASA

Directs the Administrator to enter into an arrangement for an independent assessment of impediments to space science and engineering workforce development for minority and underrepresented groups at NASA and transmit a report of the assessment not later than 15 months after the date of enactment of this Act.

Sec. 603. Independent Review of the National Space Grant College and Fellowship Program

Directs the Administrator to enter into an arrangement with the National Academies for a review of the National Space Grant College and Fellowship Program and to transmit the results of the review no later than 18 months after the date of the enactment of the Act.

TITLE VII. INSTITUTIONAL CAPABILITIES REVITALIZATION

Sec.701. Institutional Management

Directs the Administrator to develop a strategy for the maintenance, repair, upgrading, and modernization of the agency's laboratories, facilities and equipment and to transmit the strategy and an implementation plan no later than 180 days after the date of enactment of the Act.

Authorizes the Administrator to establish a capital fund at each of NASA's Centers for modernization of facilities and laboratories.

Sec. 702. James E. Webb Cooperative Education Distinguished Scholar Program

Authorizes the Administrator to establish a national Cooperative Education Program that will complement existing NASA Center-administered cooperative education initiatives. As the "best of the brightest", ten finalists will be selected annually as James E. Webb Cooperative Education Distinguished Scholars.

TITLE VIII. ACQUISITION MANAGEMENT

Sec. 801. Prohibition on Expenditure of Funds When 30 Percent Threshold Is Exceeded

The National Aeronautics and Space Administration Authorization of 2005 is amended to clarify the starting point of the period at the end of which NASA is prohibited from expending further funds on a project.

Sec. 802. Project and Program Reserves

Directs the Administrator to transmit not later than 180 days after enactment of this Act a report describing NASA's criteria for establishing the amount of reserves at the Project and Program levels.

Sec. 803. Independent Reviews

Directs the Administrator to transmit not later than 270 days after the date of enactment of this Act a report describing internal entities that conduct independent reviews of projects and programs at life cycle milestones and how NASA ensures the independence of members prior to their assignment.

Sec. 804. Avoiding Organizational Conflicts of Interest in Major NASA Acquisition Programs

Directs the Administrator to revise the NASA Supplement to the Federal Acquisition Regulation not later than 270 days after the date of the enactment of this Act to provide uniform guidance and tighten existing requirements for organizational conflicts of interest by contractors in major acquisition programs.

Sec. 805. Report to Congress

Directs the Administrator to transmit a report to Congress on April 30th of each year that provides an estimate of the total termination liability as of the end of the second quarter of the fiscal year for all NASA contracts with a total value in excess of $200 million.

TITLE IX. OTHER PROVISIONS

Sec. 901. Cloud Computing

Directs the Comptroller General to transmit a report detailing whether sensitive but unclassified and classified NASA information was processed on a non-Federal cloud computing facility and if so, how NASA ensured the safeguarding of NASA's scientific and technical information.

Sec. 902. Review of Practices to Detect and Prevent the Use of Counterfeit Parts

Directs the Comptroller General to transmit the results of its review of NASA's processes and controls to detect and prevent the use of counterfeit parts in NASA mission projects and related assets no later than one year after the date of enactment of this Act.

Sec. 903. Preservation and Management of Lunar Sites

Directs the OSTP Director, in cooperation with the Administrator and others, to enter into an international dialogue to identify the questions and research needed to understand the potential adverse impacts of various uses of the Moon on scientific activities and on lunar

areas of historical, cultural, or scientific value, and how to prevent or mitigate the impacts. Directs the Administrator, in cooperation with other relevant Federal agencies and stakeholders, to establish a grants program and to provide a report on the results of the international dialog and the establishment of an international framework within two years after the date of the enactment of this Act.

Sec. 904. Continuity of Moderate Resolution Land Imaging Remote Sensing Data

Reaffirms the finding in Section 2 of the Land Remote Sensing Policy Act of 1992, Public Law 102-555, regarding the continuous collection and utilization of land remote sensing data from space.

Requires the Director of OSTP to take steps to ensure the continuous collection of space-based medium resolution observations of the Earth's land cover and that data are made available to facilitate the widest possible use.

Sec. 905. Space Weather

Directs the Director of OSTP to prepare a long-term strategy for a sustainable space weather program and develop a plan to implement the strategy, to enter into an arrangement with the National Academies to assess the status of capabilities for space weather prediction, and transmit the results of these activities no later than 18 months after the date of enactment of the Act.

Sec. 906. Use of Operational Commercial Suborbital Vehicles for Research, Development, and Education

Directs the Administrator to prepare a plan describing the processes required to support the potential use of commercial reusable suborbital flight vehicles for carrying out scientific and engineering investigations and educational activities; assess and characterize the potential capabilities and performance of commercial reusable suborbital vehicles for addressing scientific research; and transmit the plan and assessment within one year after the date of enactment of this Act. Prohibits the Administrator from proceeding with a procurement award for the provision of a commercial reusable suborbital vehicle launch service until all indemnification and liability issues have been addressed and the Administrator has provided a report describing the indemnification and liability provisions that are planned to be included in such contract(s).

Sec. 907. Study on Export Control Matters Related to U.S. Astronaut Safety and NASA Mission Operations

Directs the Director of OSTP to conduct a study to examine the need for a process for granting real-time, limited waivers to export control license restrictions or regulations on matters related to U.S. astronaut safety and NASA mission operations and to transmit the results of the study no later than one year after the date of enactment of this Act.

Sec. 908. Amendment to the National Aeronautics and Space Act of 1958

Amends section 202 to permit the Administrator and Deputy Administrator to be retired commissioned military personnel.

Sec. 909. Near-Earth Objects

Reaffirms the direction codified in P.L. 110-422 and directs the Administrator to designate a responsible official for coordinating NASA's near-Earth object observation activities; directs the Administrator to transmit a plan for carrying out the reaffirmed direction within 270 days after enactment; and authorizes funding for specific activities.